

B.A.R.C.'s Bark

Volume XXIII - Issue 8

August, 1998

President's Notes

Good Food + Good People = Good Time!

On July, 21st the Boulder Amateur Radio Club held it's annual picnic at Martin Park. Over 60 people were in attendance including members from BARC, BARC Jr., their families and guests. The food was catered by Kaddy Shack with lots of barbecued chicken and pork for all plus a variety of salads, cold drinks and desserts. The event brought a few new members out as well as a few of the old members we haven't seen for a while. We even had a visit from our former Trustee,

Jim Ziese, ex: WØPWS, now sporting a new call, W4ABA, who happened to be in town from his home now in DelRay Beach, FL. It was great to see everyone and it was a chance for some of the BARC Srs. to finally meet the BARC Jrs. We even got to celebrate Crystal, KIØNR's (ex: KCØAJF) 13th birthday and her recent upgrade to Advanced Class. It sure was wonderful to look around the pavilion and see everyone enjoying each others company and just generally having a good time. The evening culminated with a 'Foxhunt' where the 'Fox' had been cleverly hidden by the "Master Foxhunter", Dave, KIØHG and his assistant Crystal, KIØNR. One of our newest members, Eric, NØUGY showed us how it is done by being the first to find it. He was closely followed by Randy, KØRCC and Rip, NVØM. Many of the BARC Jrs. participated in this as it is one of their favorite activities. They were all successful as well.

Our Membership Chairman, Dan Wisotzkey, NØNLS relinquished his duties to Randy Cassingham, KØRCC who is also

(See "Notes" cont. on page 2)

Meeting Minutes

BARC Board Meeting

The BARC Board of Directors met July 6th. Jack/WMØG, Jim/NØVLE, Randy/KØRCC, Rip/NVØM, Ellie/NØQCX, Dave/KEØOG, Dan/NØNLS, and Greg/WAØNDV attended.

Minutes from the previous Board meeting were read and approved.

Treasurer's Report: Expenditures this year are about \$1,000 over income so far. This should improve with BARCfest in September.

The spending pattern is typical for this time of year.

Membership Report: We have about 153 paid members.

Trustee's Report: Rip/NVØM went to the site to check on the antenna. All still looks tight and in good condition.

BARC Junior's Report: The Field Day went very smoothly. The Elks

Club, which provided the site, was very happy with the operations, and have invited the Juniors back again next year. About 78 people were there at the peak --dinner.

BARCfest: Dan/NØNLS reports that table reservations are already coming in much earlier than usual. It was noted that we sold out of tables last year--with the way things are going, that may happen again this year!

Old Business: Greg/WAØNDV presented a draft of our application to the IRS for tax exemption. The Board helped fill in some blanks. Greg will prepare another draft and circulate it to the Board for final approval.

Submitted by:

Randy Cassingham, KØRCC
BARC Secretary

BARC Monthly Meeting

This month's meeting was the annual picnic, held at Martin Park in Boulder. A terrific turnout! Present were: Greg/KCØADT and Liz and Issac and Jacob, Barry/KØXE and Karen and Colleen, Eric/NØUQY, John/NØRUP and his wife, Greg/WAØNDV and Shelley and Amory/KCØBPB and Walt/KCØBPC, Al/WØLMQ and Amarline, Kit/KCØDVD, Rip/NVØM and Ellie/NØQCX, Galen/KCØAGX, Bob/NQ5P and Jenny, Gary/WØQN, Jim/W4ABA, Don/KEØEE, Darrell/KCØBXC, Randy/KØRCC, Jack/WMØG and Mary, Dan/NØNLS and Mary/KBØUBY and Sarah/KBØZRV and Danny, Marty/KBØVQK and Mary Frances/KIØDZ and Stephen and Kyle and Ryan, Terry Lee/KCØBCP and Judy and Daniel and Aaron, Mark/KBØTHH and Joseph/KBØYWT and Jordan, Bruce/KD6NJT, Jim/NØVLE and his family, Bill/NØJVO and Maryanne/NØMKN, Tim/KCØCNQ and Linda, and Crystal/KIØNR, Glenn/W9FFU and Dorothy, Ross/WAØVQO, Mike/NØFZB, Jim/WAØNHD, Jeremy/KIØLK, as well as Will, Nina, Owen, Dan, and Valerie -- a total of 59 sign-ins, but we're pretty sure there were

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---- Serving the Boulder Amateur Radio Community ----

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BARC Repeater - WØDK

146.700 (-600 KHz offset)

100 Hz PL

BARC 24 Hour Phone Number

303-380-6540

BARC E-Mail Address

BARC@pobox.com

BARC Website<http://www.thisistrue.com/barc.html>**Monthly Meetings are held on the****Third Tuesday of every month****at NIST @ 7:30 PM (unless notified)****("Notes" cont. from page 1)**

our Club Secretary and Webmaster. Dan will continue as our BARCfest Chairman and wants to devote his full attention to BARCfest and we all know how much time and effort that takes to organize. I would like to thank Dan for his efforts while being our Membership Chairman during a time of BARC's largest growth. A reminder from Dan to all.... we will need volunteers for setup, takedown, cashiers, vendor check-in, announcers, talk-in plus, we will also need VE's this year during BARCfest. Please call the BARC "hotline" and leave a message as to your preferences. This is our largest fund raiser and a little help from everyone would be certainly appreciated.

The response to our QSL card photo contest was *underwhelming* to say the least! I know we have some good photographers in the club and a representative photo of the Boulder area would be appropriate for the official BARC club QSL card. Please send your photo entry into the club PO Box and we will select one at our August meeting.

Rumor has it that our esteemed, long time BARC member, friend and physicist, Yardley Beers, WØJF will be leaving us soon to relocate back to the Boston area. He will be missed by one and all at BARC. Yardley has been a most active BARC club member and a great teacher to us all. During his incredible career he has worked with five recipients of the Nobel Prize, taught Physics at NYU, MIT and CU, ran NBS here in Boulder, is credited with the invention of the Beers Attenuator and has written 15 major scientific publications. Yardley has rubbed elbows with some of the greatest minds of our time and yet, we will probably remember him best for his homebrew "sardine can" QRP rigs and test instruments which he has been kind enough to share with us! Yardley, we wish you and Dorothy all the best and thank you!

73, de Jack, WMØG

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Editor's Corner

Hello BARC's Bark-ers~

I attended my first BARC picnic this year. I enjoyed meeting many of the members and their families, had some terrific barbecue and I was extremely pleased to learn that there were no small, furry animals harmed in the "Foxhunt." It certainly shed a new light on my idea of how to hunt foxes!

At the new hacienda, things are shaping up quite nicely and we've held our first board meeting since the move. The new lawn is finally ready for tracking and mowing. I'm trying to decide where to plant a rose bush or two while my OM, Jack, WMØG is trying to figure out where to plant radials and his vertical..... now that's an interesting concept. I'm reminded of the time I was doing some yard work at our first place in Boulder. I kept raking up copper wiring all over this huge back yard along with everything else only to be informed later that these were all part of my OM's antenna system. Anyone ever have to walk through a mine field? Needless to say, Jack was not too pleased with the yard work which I felt had been done meticulously.

I would like to report that the new scanner is working great and a lot of the content in this newsletter has been produced by it. We always need articles for the newsletter so anyone who would like to contribute to BARC's Bark can now send their articles to us in any format. We would love to hear from you.

The next big event of the season for the BARC club is the BARCfest in September at which time I hope to meet one of my strongest supporters and mentors, Larry Amman, K5TQN. Will see you all next month.

73 & 88, Mary

To submit items for the BARC's Bark newsletter send them to: Mary Ciaccia at PO Box 21362, Boulder, CO 80308 - 3362 or Fax them to (303) 666-8613 or EMail them to:

WMØG@aol.com.

Articles need to be to the editor by the end of the month. Please be sure to put your name at the top of the article. -- ed.



Yap Yap

"The Voice of BARC Jr."

BARC Jr. Officers July - December 1998

President - Tyler, KBØSHT

Vice President - Chapman, KBØPON

Secretary - Walt, KCØBPC

Co-Treasurers - Crystal, KIØNR &
Amory, KCØBPB

Young Hams Net

Sundays at 7:00 PM
146.700 (-600KHz Offset)

BARC Jr. News

New Licenses and Upgrades: Crystal ex: KCØAJF is now KIØNR since she recently upgraded to Advanced Class. Huck's mom, Judy has a call sign now. Judy is KCØDWL and is the 114th person to be licensed through the BARC Jr. program. Congratulations to you both on your achievements!

BARC Jr. now has it's own HF ham station at "903"! Jeremy, KIØLK and Rip, NVØM have installed and checked out the Drake TR-7 that had been donated to BARC Jr. Thanks to both of you! This station is designed to be used by the BARC Jrs. during BARC Jr. sessions, time permitting, and at other times when it is convenient for the BARC Jr. and of course, Rip such as the "overnighters" which will be coming up when we get back on our regular schedule.

The next regular BARC Jr. session after the August 8th Picnic will be held Saturday, Sept. 12th from 2:00PM til' 3:30PM.

The BARCfest Youth Forum on Sunday, Sept. 27th will have presentations given by Blair, Crystal, Walt, David, Huck, Amory, Tyler, Grant, Sarah and Chapman. These BARC Jrs. will be meeting with Ellie at "903" on Tuesday, August 25th from 1:00PM until 3:30PM. Blair and Crystal will consult with all of you at this special get together.

Don't forget to check in with the Young Ham Net every Sunday at 7:00PM on the 146.70 BARC repeater.

73 & 88, Ellie, NØQCX

BARCfest Donations Now Being Accepted !!

Now is the time to give that old ham "treasure" to a good cause. BARC Jr.'s will have a swap table at BARCfest and the proceeds are used for their expenses. Call Ellie, NØQCX at (303) 494-5578.

BARCfest Youth And Amateur Radio Forum

Every year BARC Jr. trains several of its "students" in speaking, and has them pick a topic which they are interested in. After the BARC Jrs have finished an extensive training course in public speaking, they perform speeches on their chosen topics in front of a committee of Elmers who select one or two of these BARC Jrs to go to Dayton, Ohio to participate in the Dayton Hamvention's Youth in Amateur Radio Forum coordinated and moderated by Carole Perry, WB2MGP. Unfortunately, out of all of the BARC Jrs who try out for Dayton only one or two make it every year. This year we had several children who tried out and didn't make it to Dayton. Because of this, BARC and BARC Jr. decided to create a Youth Forum at this year's BARCfest.

BARCfest is an amateur radio swap meet held yearly at the Boulder County Fair Grounds in Longmont at which radio and computer equipment is sold and traded. This year the swap fest will be held on Sunday, September 27th. The admission to the swap fest will be 4 dollars for adults, 2 dollars for children 13 to 18 and free for children 12 and under. Tables can also be reserved for selling and trading items. Tables will be 10 dollars prepaid or 15 dollars at the door. The youth and amateur radio forum that is being held will be to support the idea of teaching children about amateur radio.

At the forum several people will speak on various topics starting with a one half hour

BARC Jr. Calendar

Aug 25 - Youth Forum Special Meeting
Sep 12 - 11:00AM BARC Jr. Board meeting
Sep 12 - Next Regular BARC Jr. session from 2:00PM - 3:30PM
Sep 27 - BARCfest & Youth Forum

introduction from Rosalie White, WA1STO who is with the ARRL's Education Activities Department and has supported BARC Jr. in all

of it's activities. After the speech from Rosalie, the forum will continue with several speeches from BARC Jrs: Blair (KBØROM), Walt (KCØBPC), Crystal (KIØNR), Sarah (KBØZRV), David (KCØDDR), Huck (KCØAGV), Chapman (KBØPON), Tyler (KBØSHT), Grant (KBØZQX), and Amory (KCØBPB). These BARC Jrs will speak on various topics of interest that they have in amateur radio. Every one of these BARC Jrs have had extensive training by this year's Dayton Youth Forum participants, Blair and Crystal. After the speeches, we will have several door prizes to be handed out to the youth in the forum audience and to the panel of BARC Juniors who have the knowledge to use the Ham Radio related equipment prizes.

We anticipate excellent attendance at the youth forum and would encourage any children or adults with an interest in amateur radio to come to this forum as it should prove to be an excellent learning experience for all.

Submitted By:
Walt, KCØBPC

editor's note:

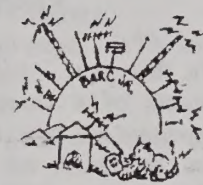
Walt is 15 years old and holds a Tech Plus license and 13 wpm code.

Amateur Radio Education Alliance

Bruce Winchell, N8UT, says "hey, we exist!" According to Bruce, January 1st, 1998 saw the appearance of a new national amateur radio organization on the web. The Amateur Radio Education Alliance. It's purpose, structure and philosophy is pretty well explained on the website. *Editors note...A lot of items here deal with ARES info. Most are related to educational info for new hams.*

Go to: <http://www.area-ham.org> to learn more.

(Via N8UT)



VIDEO VIEWS from CHAUTAUQUA
Part VIII of a multi-part ATV series
 By Jim Andrews, WAØNHD-TV

Video Signals

In this issue I will discuss the technical aspects of a video signal. This will be important for later issues covering modulation, bandwidth, etc. A video signal from a TV camera or VCR is a very complex signal. Within it, it must convey the location on the CRT screen of the picture element (or pixel), the relative brightness (or luminosity), the color (red, green or blue) and the hue (or color saturation). After it passes through a TV transmitter it becomes even more complex with the addition of sound which could include stereo right and left channels, additional sound channels in other languages. Another complication is digital data that also gets inserted for the closed captioning. A modern TV receiver is a very complex piece of electronic equipment that must then decode all of these various pieces of information to present the final images and sound to you the viewer and listener.

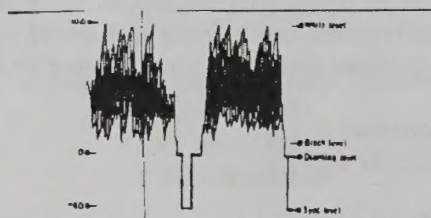
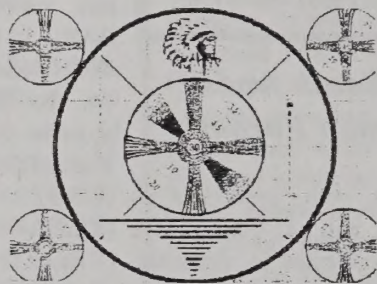


Fig. 1 --- A typical B&W video signal

Figure 1 shows a typical video waveform from a black & white TV camera as displayed on an oscilloscope screen. The "ragged" portion of the waveform resembles looking at an audio signal on an oscilloscope. This is the part of the signal that tells us the brightness of the pixels, i.e. is it white, black or some in-between shade of gray. The other major waveform element is the sharp, rectangular negative going pulses. These are called Sync and Blanking pulses and they are used to tell the TV receiver where to position the pixels. A TV picture is painted out on your home TV set by sweeping an electron beam across the face of the CRT. See Fig. 2. The electron beam first starts at the upper left

hand corner of the CRT. It then sweeps horizontally from left right. When the beam reaches the right side of the screen a horizontal sync pulse occurs which is the command for the electron beam to rapidly retrace to the left side of the screen. During the retrace time, the electron beam is blanked so that it will not write anything on the CRT screen. When the electron beam has been retraced to the left of the screen, it also drops



down the screen a small amount before starting to sweep again from left to right painting out the next horizontal line of the picture. The electron beam continues doing this painting from left to right and retracing until it reaches the bottom of the screen. When it reaches the bottom another much longer duration sync pulse appears in the video signal. This is the vertical sync pulse which tells the electron beam to return to the top left corner of the screen and to start painting out the next TV picture.

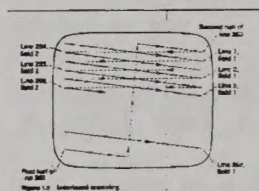


Fig. 2 Interlaced scanning of an electron beam on the CRT screen.

Lets now talk about numbers to associate with this video signal and the sync pulses. A single complete picture is called a frame. A frame consists of 525 scanning lines. Each frame is broken into two fields of 262 1/2 lines. One frame is painted from left to right, top to bottom on the CRT screen. The second frame is then minutely repositioned so that its lines are interlaced between the lines of the first frame. A new frame occurs at a 30 Hz rate, i.e. thirty times a second you are presented with a completely new picture. This compares with 24 times a second for motion pictures. This is fast enough that you do not notice "flicker" in the images. The field rate, and the rate of occurrence of the vertical sync pulses, is thus 60 Hz. It should be noted that 60 Hz was originally chosen when TV was first invented in the 1930s to

minimize the interference patterns from "hum" from the 60 Hz ac line. The horizontal sync pulses occur at a rate of 15.75 kHz. The duration of the horizontal and vertical pulses is about 11 and 1000 microseconds respectively. For complete synchronizing of the interlacing, etc. there are also some other minor sub-pulses included occasionally into the TV signal. We will not discuss them here.

The 525 line, 30Hz/60Hz, 15.75kHz TV system described above is called "NTSC" and is the TV system used in the USA, Canada, Mexico and Japan and a few other countries. Most of the rest of the world uses two different systems called PAL and SECAM. PAL was designed by the English and Germans. SECAM was designed by the French. The PAL & SECAM systems are 625 line, 25/50Hz, 15.625kHz systems. The PAL & SECAM systems use different methods to transmit color. PAL, SECAM & NTSC TV signals are not interchangeable on ordinary TV receivers.

When color is next introduced into a TV signal our signal becomes even more complex. Within a TV camera optical filters are first introduced to split the light into the three primary colors of red, green and blue which results in three separate video signals. These three video signals are then electronically recombined to create two signals called the luminance signal and a chrominance signal. The luminance is our B&W signal conveying the black, white and various gray shades. The chrominance, or chroma for short, then conveys the color information associated with the brightness or gray levels. The luminance signal is what we have previously discussed. The chroma signal is added onto the B&W video signal using a subcarrier, much in the same fashion that stereo audio is transmitted. The color subcarrier frequency is 3.58 MHz. The modulation of this color subcarrier is a very complex combination of amplitude, ssb and phase modulation. The upper and lower sidebands carry different portions of the chroma signal. When this chroma signal is mixed into the B&W video it is difficult to distinguish it from the ragged part of Fig. 1 when viewing it on an oscilloscope. What is most obvious however is the appearance of a very distinct sine wave of a few cycles which appears immediately following the horizontal sync pulse. This sine wave is at 3.58 MHz and is carried along with the video signal for use as a frequency/phase reference signal by the TV receiver for demodulating the chroma infor-

(See "Video" cont. on page 5)

1998 BARC Meetings, Programs and Activities

Aug 18 - "ATV Equipment, Antennas and Basic Theory" - Guest speaker will be Jim Andrews, WAØNHD. Jim will add to his informative, multi-part ATV articles that have been featured in this newsletter with this presentation and ATV equipment demonstration. Meeting at NIST, Rm. 1107.

Sep 15 - "Time Coordination Around The World And How It Effects Radio Communications". Plus information on the atomic clock and the research going on here at NIST for an even more accurate clock. Guest speaker will be John Lowe from NIST. Meeting will be held at NIST, Rm. 1107.

Sep 27 - BARCfest and ARRL Colorado District Convention. The theme is "Youth and Amateur Radio". A youth forum will be featured and the forum moderator will be Rosalie White, WA1STO head of the Education Activities Committee from ARRL HQ. Meet your Rocky Mountain ARRL representatives. For more info check the BARC website at URL:

<http://www.thisistrue.com/barc.html>

Oct 20 - QRP Home Brew Night - Bring along any Home Brewed QRP Ham Radio gear (including kits) for **Show and Tell**. Guest speaker tonight will be Rich, WØHEP, President of the **Colorado QRP Club**, WØCQC. Meeting at NIST, Rm. 1107.

Nov 17 - Code Proficiency Test. - How fast can you copy? Bring along your water-cooled pencils! The code proficiency test will be held at 6:30PM prior to the regular meeting. Certificates will be awarded. Guest speaker will be Yardley Beers, WØJF with his presentation on **"The Mathematics of Trap Antennas"**. Find out how and why they work. Meeting at NIST, Rm 1107.

Dec 15 - "The Space Environment and it's Effect on Radio Communications" -

Presented by Dick Grubb, WØQM, Acting Director of the Space Environment Center. The Space Environment Center (SEC) provides real-time monitoring and forecasting of solar and geophysical events, conducts research in solar-terrestrial physics, and develops techniques for forecasting solar and geophysical disturbances. SEC's parent organization is NOAA. NIST, Rm 1107.

("Video" cont. from page 4)

mation. If this 3.58 MHz Color Burst is not present, you will only get a B&W picture.

The voltage and impedance levels of video signals from cameras and VCRs are very well standardized. 75 Ohm coaxial cables are used to transmit video signals. All video signal levels are specified to be terminated into 75 Ohms. A standard video signal is 1 Volt peak-to-peak into 75 Ohms. The polarity is defined to be negative with the sync pulses being the most negative part of the signal and the white part of the picture being the most positive. This 1 V swing is broken into 140 IRE units. Blanking level is defined as 0 IRE, black is +10 IRE, white is +100 IRE and sync is -40 IRE.

Our next issue will cover the aspects of bandwidth, video and audio modulation methods.

73 de Jim, WAØNHD - TV

+++ Silent Key +++

Penney M. Gray, NØDKS

Oct. 8, 1926 - July 14, 1998

Penney M. Gray of Boulder died Tuesday, July 14, 1998, in Boulder. She was 71. She was born Oct. 8, 1926, in Boulder to Earl Pendell and Bertha VanDyke Pendell. She married James E. Gray on April 18, 1976. Mrs. Gray was an amateur radio operator and volunteered for the Red Cross Disaster Team, the People's Clinic in Boulder and the Association for Retarded Children. She was a member of the First Methodist Church of Boulder.

Survivors include her husband of Boulder; two daughters, Paula Menzel of Boulder and Lyn Paleo of Oakland, Calif.; a son, Eric Hobbs of Concord, N.C.; a brother, Floyd Pendell of Denver; and one grandchild.

She was preceded in death by a sister, Bea Wedemeyer.

Memorial Services were held on Saturday July 18, 1998 at Howe Mortuary Chapel, Boulder.

In lieu of flowers, contributions may be sent to People's Clinic, 3303 Broadway, Boulder 80304.

(from Boulder Daily Camera, July 19, 1998)

Penney was a member of BARC for many years prior to her illness and served on various committees and as BARC Secretary.

*The following addresses are helpful
in searching for many different
ATV Ham Radio items on the
INTERNET*

<http://www.cris.com/~Gharlan>

ATVQ Magazine home page. - ATV equipment & article references.

<http://www.hamtv.com>

PC Electronics Inc.- Lots of proven ATV equipment for sale.

<http://downeastmicrowave.com>

Down East Microwave Inc. - Lots of uhf/microwave parts & modules.

http://www.yahoo.com/Entertainment/television/Amateur_television

Listing of some available ATV home pages.

<http://www.acs.ncsu.edu/HamRadio>

General ham radio info- satellite track, call sign database.. etc.

<http://www.arrrl.org/hamfests.html>

Current yearly hamfest directory.

<http://amsat.org>

AMSAT satellite directory/home page.

<http://www.arrrl.org>

ARRL home page

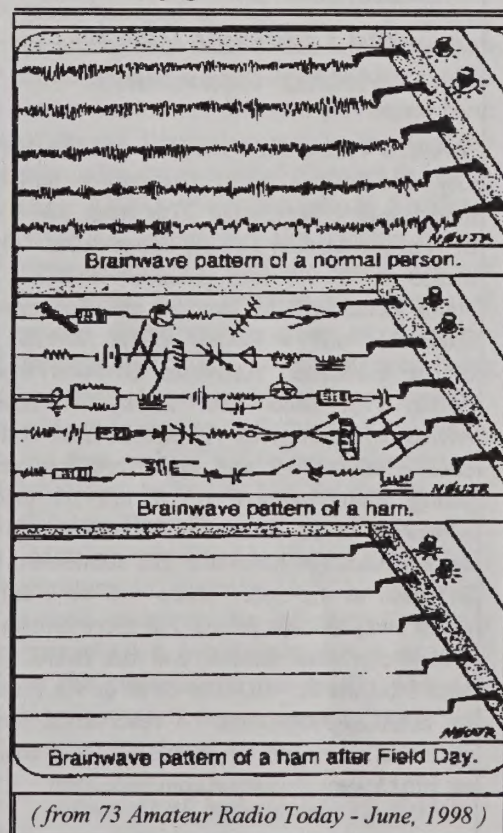
<http://www.ualr.edu/doc/hamualr/callsign.html>

Search by call sign or name.

<http://hamradio-online.com>

Ham Radio Online "newsletter" - Lots of Ham related information.

<http://www.smart.net/~brats/atna.html> - ATNA homepage



Future Hamfests Calendar

August 16 - Denver Radio Club's Hamfest and Colorado State Convention

Jefferson County Fairgrounds, 15200 W. 6th Ave. Golden, CO. (Indiana St. Exit) 8:30 AM to 2:00 PM. Talk-in 145.49 (100Hz). Admission is \$4. Advance tables are \$10 or \$12 at the door. Contact: Hugh Matheson, KØQD Phone: 303-674-2890 or mail to: Guy Reed, W5GR, 29875 Troutdale Scenic Drive, Evergreen, CO 80439-7737.

August 29 & 30 MARC Campfest / Swapfest

The 17th Annual Mountain Amateur Radio Club Campfest/Swapfest will be held at the Colorado Lions Camp, 4 miles North of Woodland Park on Highway 67 North. Free admission. Talk-in on 146.82. \$10 per space daily to camp and/or sell. Contact Don, AAØNW at 719-687-3692 or mail reservations to: MARC, PO Box 1012, Woodland Park, CO 80866 or via Email to: dsrtflwr32@aol.com

September 27 - BARCfest and Colorado District ARRL Convention

BARC's 45th annual swapfest and the 1998 Colorado District ARRL Convention will be held Sunday, September 27th from 8AM to 2PM at the Boulder County Fairgrounds. The theme is "Youth and Amateur Radio". A youth forum will be featured and the forum moderator will be Rosalie White, WA1STO of the Education Activities Division from ARRL HQ. Meet your Rocky Mountain ARRL representatives. Admission is \$4 at the door. Children 12 and under are free and young adults, ages 13 - 18, are 1/2 price admission or \$2. Table reservations are \$10/each prepaid (includes one free admission) or \$15/each at the door. There will be 4 HT's given away as door prizes. For more information and/or reservations, call the BARC 24 hour HotLine at: 303-380-6540 or via Email to: BARC@pobox.com. A reservation form is in this newsletter or on the BARC website at: <http://www.thisistrue.com/barc.html>

("Minutes" cont. from page 1)

more like 70 people present.

The minutes from the last meeting were approved as published in the newsletter.

The Treasurer's report was skipped since he is on vacation.

Trustee: the repeater is in good shape. However, we skipped the last several upgrades of the controller and are in the process of getting the latest version. This will enable more functions and easier programming.

Membership Chair: about 158 paid members to date. Dan/NØNLS has been membership chair for several years, and is ready to give it up if there is someone available to take over. Randy/KØRCC volunteered.

BARC Jr. Coordinator: Field Day went very smoothly and the kids had a great time.

Technical/Interference Committee: Randy/KØRCC reports there has been some malicious interference on the repeater. A 12-year-old (or so) boy who knows how to turn the PL on and off and has been using foul language, causing interference, and not identifying with a callsign -- all three are federal crimes. Randy has tracked him down so far to the east Louisville or Lafayette area, and is likely using a home station with a good antenna. If you have kids in the house, please be sure they fully understand how serious playing with the radio is!

Health & Welfare Committee: Penny Gray/NØDKS died. She was a longtime BARC member and officer.

Field Day: Considering the chairman had a limited time to put together a site for the Seniors, it was a very good Field Day! Next year, would like to get an earlier site and perhaps get some equipment to fill in the gaps in our inventory. This is a good idea anyway so we're better prepared for disaster situations.

BARCfest: Flyers have been printed and were distributed at the Picnic. Please spread them around, especially at electronic stores (Radio Shack, HRO, etc.) and other swapfests. Flyers will be available at all BARC meetings or from any BARC officer, and on the Internet -- there is a link from our web page at <http://www.thisistrue.com/barc.html>

Old Business: Greg/WBØNDV is making good progress in getting BARC tax exempt status with the IRS so contributions are tax deductible. This will help us get more donations to expand our educational and emergency communications services even more.

QSL Card: No one has volunteered a photo yet for the Club QSL card (we are completely

out), so the "contest" for a photo has been extended.

Internet-to-Packet Gateway: We were offered a gateway site into the Internet, but after study it proves not to be in our best interests.

There are licensing, control, and equipment issues that neither BARC nor BCARES wish to take on. Jack/WMØG will decline the offer with thanks.

The meeting was adjourned to the program: a foxhunt in the light rain.

Submitted by:

Randy Cassingham, KØRCC

BARC Secretary

Where Hams Live

More than one third of all licensed United States radio amateurs live in one of five states. California leads the pack with nearly one seventh of the nations ham radio population or 109,778 hams. Florida follows with 43,674. Texas lays claim to 43,240 hams while New York has 35,811 with almost half of those in the five boroughs of the "Big Apple" -- New York City. Rounding out the big-five is Ohio with 32,216.

But this is bad news if you happen to live east of the Continental Divide. This is because the large, North-Eastern states are suffering the largest losses in ham radio operators. Massachusetts, New York, New Jersey, Pennsylvania and even the ARRL's home base in Connecticut are the states seeing the greatest ham radio migration away. Meanwhile, the biggest gains are taking place in the Northwest, Southwest and Rocky Mountain areas. This includes Arizona, Colorado, Idaho, Nevada, New Mexico, Utah and Wyoming.

What's causing this shift is not known. Some speculate that there are far more older hams becoming silent keys in the populous Northeast while the Northwest, Southwest and Rocky Mountain areas are the nations new frontier for the young and the young at heart. Whatever the real reason, the shift is on and the numbers show it.

(Via W5YI Report, others)

Humor from Rocky Flats

Two atoms are walking down the street and they run into each other. One says to the other, "Are you all right?" "No, I lost an electron!" "Are you sure?" "Yeah, I'm positive!"

Colorado Amateur Radio License Exam Information

Testing in Northern Colorado

Boulder - The Boulder VE Team holds exams the **2nd Monday of each month** at 7 PM at the LDS (Mormon) Church on 701 W. South Boulder Rd. in Louisville. Contact Ellie Van Winkle, NØQCX at (303) 494-5578 for details.

Ft. Collins - Exams are held the **second Saturday of odd months** at 9 AM at Colorado State University, Lory Student Center, Room 206, Ft. Collins, CO. Contact Steve Henry at (970) 226-2817.

Longmont - The Longmont Amateur Radio Club VE Team holds exams the **fourth Saturday of every month** at 10 AM at the Boulder County Fairgrounds, Administration Bldg., Longmont, CO. Contact Earle Cate, NØISB at (303) 776-9158 or Ray at (303) 776-2954.

Greeley - The Greeley VE Team holds exams on the **second Saturday of even months** at the University of Northern Colorado, 11th Ave. and 21st St., Ross Hall, Room 36, Greeley, CO 80631. Contact Andy Loomis at (970) 339-9836

Denver Metro Testing

The South Metro VE Team holds test sessions the **first Saturday of every month** at the Castlewood Public Library, 6739 S. Uinta St., the SW corner of Arapahoe Rd. and Uinta, 1/2 mile West of I-25. Amateur Exams are held at 9 AM, Commercial Exams are held at 1 PM. For more info call David Avery, NØHEQ, at (303)795-5718.

The Mile High VE Team holds exams the **second Saturday of every month** at 9 AM at St. Luke's Episcopal Church, 1270 Poplar St. Enter from the parking lot at 13th Ave. and Quebec St. For details call Glenn or Karen Schultz at (303) 366-0155.

The Denver Radio Club VE Team holds exams the **third Thursday of every month** at 7 PM at Tech America, 1550 So. Colorado Blvd. For more info call Paul Veal, NØAH, at (303) 457-0665

The W5YI VE Team holds periodic testing in Aurora on the **last Sunday of every month** at 10 AM. For more info call Lee Tingle, KØLT, at (303) 364-6783

ARRL Proposes Simplified Amateur License Structure

The ARRL Board has agreed to propose a simplified Amateur Radio licensing structure with four classes. Lengthy discussion and debate during the Board's meeting July 16-18 led to majority support for a plan for four written examination elements to establish amateurs' operational and technical qualifications instead of the present five, and two Morse code examination elements instead of the present three.

Under the plan adopted by the Board, the entry level to Amateur Radio would be known as Class D and would convey the privileges of the present Technician license. The written examination would be at the same level of difficulty as that of the present Technician examination, but consistent with the privileges of the license. All amateurs now licensed as Technicians would become Class D.

The next step would be known as Class C and would convey the privileges of the present General license, but with phone subbands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. Class C would be the entry level to high frequency (HF) operating privileges. To upgrade from Class D to Class C, an amateur would pass a written examination on the operational and technical qualifications required for HF operation and a 5 word per minute Morse code examination. All amateurs now licensed as General, Technician Plus, and Novice would become Class C. The expansion of the telephony sub-bands would result from "refarming" of the Novice CW bands that are no longer required for their original purpose.

The third step would be known as Class B and would convey the privileges of the present Advanced license, but with phone sub-bands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. To upgrade from Class C to Class B, an amateur would pass a more advanced written examination similar in difficulty to the present Element 4A and a 12 word per minute Morse code examination. All amateurs now licensed as Advanced would become Class B.

The final step would be known as Class A and would convey the full privileges of the present Amateur Extra Class, with telephony sub-bands expanded by 50 kHz on 75 and 15 meters and by 25 kHz on 40 meters. To upgrade from Class B to Class A, an

amateur would be required to pass the most difficult written examination in the sequence. Consistent with the practice in many other countries, no additional Morse code examination would be required beyond 12 words per minute. All amateurs presently licensed as Amateur Extra Class would become Class A.

In their discussions, Board members emphasized that the objective is to rationalize and simplify the amateur licensing structure without reducing the requirements for any class of license. Where reductions in Morse code requirements are proposed, there would be a corresponding increase in written examination standards. On the other hand, Board members were adamant that simplifying the structure should not come at

the expense of privileges already earned by amateurs. Therefore, present Novice and Technician Plus licensees, having earned entry-level HF operating privileges, would be granted the new entry-level HF license.

Adoption of the simplification plan marks the culmination of 30 months of work by the Board, during which time the input of literally thousands of ARRL members and other amateurs and prospective amateurs was considered. The Board debated a wide variety of options including both smaller and larger numbers of license classes, higher and lower qualification levels, and different privileges. Nine of the 15 Directors voted in favor of the plan, with six opposed. Following the meeting ARRL President Rod Stafford, W6ROD, observed, "The debate was at times contentious and the result was not unanimous. Some Board members preferred greater simplification; others were uncomfortable with some of the changes being proposed. However, every Board member, without exception, left the meeting knowing that each of his or her colleagues did what they believe is best for the future of Amateur Radio."

Members are urged to contact their ARRL directors to comment on this proposal. E-mail addresses are on page 10 of any issue of QST. Members also may comment on the proposal via the ARRL Web site, <http://www.arrl.org> or via e-mail at: restrux@arrl.org.

(from ARRL bulletin July 22, 1998)



Ham Talk

By Bob Johnson, NQ5P

Did anyone notice my song in the last Ham Talk? Since I didn't get any complaints and heard no-one laughing I figure no one saw it. Maybe I'll have to sing it on the next Net night.

July Puzzler Solution

Please congratulate Rip Van Winkle, NVØM on solving the July puzzler. The problem was, "what one component could be added to the circuit shown on this page to solve a weakness". Rip correctly answered that the one component to add was an emitter resistor. This resistor goes between the lead of the transistor with the arrow and ground. The weakness of this circuit is that variations in transistor gain (h_{fe}) and temperature variations can cause any number of problems, including higher than normal dissipation (that means heat produced, and heat is the enemy of electronic circuits) with the risk of thermal instability or runaway, distortion due to operating in the non-linear portion of the gain transfer curve, or distortion due to saturation. Nobody wants distortion, unless you play the guitar in a Rock group! The addition of the resistor lowers the gain of the circuit, for which a rule-of-thumb is h_{fe}/R_e , where R_e is the emitter resistance. You can maintain the AC gain and keep the emitter resistor by adding a capacitor of the proper value across it. Another trick not quite as good in reducing variations is to move the one biasing resistor from the power connection to the collector side of the load resistor. No additional components would be required.

One of my first transistor circuits that I built was a microphone amplifier. I pity all of the Hams who had to listen to me test the circuit on the air. (I had RF feedback which is a subject for another discussion.)

August Puzzler

Name three ways to irritate, and three ways to ingratiate (make him grateful) your fellow Ham.

The Perfect Microphone Amplifier

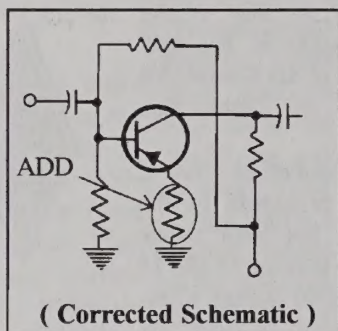
Speaking of microphone amplifiers, I remember one summer while in college I could not return to my old job at Sears, Roebuck, & Co. I found (which is another story in itself) another job that summer maintaining the two-way radio system for a wealthy Texas family that owned a number of business interests, including oil, cattle, and car dealerships to name a few.

I never had much contact with them, except once I chased down and returned the cowboy hat of one person that blew away in the wind. I'd hear them talking on the radio occasionally, but mostly it was just chatter between the people working for them.

One of the owners who liked to fly in a Helicopter during round-up, sounded very bad on the radio. At first I thought it was something to do with the Helicopter and its chopping blades. When the radio was brought in for a tune-up I took the liberty of repairing the microphone amplifier, quite pleased with myself. Later my boss asked

me if I had fixed it, somewhat annoyed. He went on to explain that the owner that flew in the Helicopter had had his larynx removed due to cancer. As I think back upon it, the mike amplifier had been tampered with to make all using it sound the same. I guess I should have left well enough alone.

73s - Bob, NQ5P



Colorado 14er' Radio Event



The 1998 Colorado 14er' Radio Event will be held Sunday, August 30th. During the event, a group of amateur radio operators will operate portable from the summits of various Colorado 14,000 foot mountains. The operating times will be from 9 AM to 12 Noon local time.

Radio amateurs are encouraged to work as many of the mountaintop stations as possible. However, this is NOT A CONTEST, no points are awarded, no scores recorded. A special event QSL card can be obtained by QSLing to the mountaintop station's home address and please include an SASE (Self-Addressed Stamped Envelope). Most mountaintop stations will be running low power handheld radios. Stations running higher power need to keep in mind that they can interfere with stations they cannot hear.

Radio operators with 14er' hiking experience who wish to participate should contact Bob, KBØCY at kbocy@qsl.net or RobtWitte@aol.com (e-mail is preferred) or phone at 719-488-0859. Updated information on the event is posted at :

<http://members.aol.com/RobtWitte/colo14.html>.

To avoid having multiple stations on the same peak, radio amateurs that want to participate must coordinate with KBØCY.

Frequencies used during the event:

- 146.43 Longs Peak
 - 146.46 San Juan Range (Handies, Redcloud, ...) Sangre de Cristo Range (Crestone, Humboldt, ...)
 - 146.49 Bierstadt, Grays and Torreys
 - 146.55 Coordinating Frequency (Net Control, Pikes Peak)
 - 146.58 Mt. Evans
 - 147.42 Elk Range and North Sawatch Range
 - 147.45 Mosquito Range (Quandary, Lincoln, ...)
 - 147.48 South Sawatch Range (Huron and peaks south)
 - 147.51 Pikes Peak (QSOs)
 - 147.54 Reserved for Mountaintop Stations Only
 - 223.5 Primary 222 MHz frequency
 - 446.000 Primary 70 cm frequency
 - 446.025 Alternate 70 cm frequency
 - 446.050 Alternate 70 cm frequency
 - 52.525 Primary 6M FM frequency
- Other bands/modes: standard calling freqs.

WØDK QSL Card Contest LAST CHANCE TO ENTER!!

Due to the *underwhelming* response last month, again we are asking "Do you have a great picture of Boulder or the surrounding countryside?" BARC will be printing new photo QSL cards and we would like to use your photo. The selected photo will have the winning photographer's credit published on every QSL that WØDK sends around the world and beyond ! You'll be famous - worldwide and intergalactically!

Mail your entries to: BARC, PO Box 17362, Boulder, CO 80308-0362 or bring them to the August BARC meeting. The winning photo will be selected by club vote at the August 18th meeting.

The Boulder Amateur Radio Club presents the 45th Annual

BARCfest

Amateur Radio & Computer Swap

Sunday, September 27, 1998 at the
Boulder County Fairgrounds

Longmont, Colorado

8:00 a.m. to 2:00 p.m.

Admission: Adults \$4, age 13-18 \$2, 12 & under free

Door Prizes!

Portable Ham Radios to be given away every hour from 9:00 a.m. to noon!

And many other Prizes

1998 Special Attractions!

ARRL Colorado Section Annual Convention

Meet your ARRL Rocky Mountain Representatives at the ARRL Forum from 8:30 a.m. to 9:30 a.m.

VE Testing by Boulder VE Team

Get a new license or upgrade your license class. Begins at 10:00 a.m.

Youth in Amateur Radio Forum

What's the future of ham radio? Find out what **BARC** and **BARC Jr.** is doing to bring youngsters into our hobby. Bring your kids to see what other kids are doing! Forum begins at 10:00 a.m.

Special Guest Moderator: Ms. Rosalie White, WA1STO, of ARRL Headquarters' Education Division.

All kids (<18) in Attendance Eligible for Prizes!

Boulder County's Emergency Communications Van

A Mobile Command Post Providing Emergency Communications for Law Enforcement, Fire, and Disasters

Includes: Boulder County Amateur Radio Emergency Service (BCARES)

Packet, ATV, 2 meter and 70 cm amateur stations.

Live Demonstration: Fast Scan Color Amateur Television (ATV)

For Information Updates See

<http://www.thisistrue.com/barc.html>

or call 303-380-6540 (24 hrs)

Talk-In on 146.70 (-)

WØDK - The BARC Repeater

See other side for

Vendor Table Information

BARCfest Table Reservations

Sunday, September 27, 1998
Boulder County Fairgrounds
Longmont, CO

Cost: \$10.00 per table (pre-paid) or \$15.00 (at the Door)
One admission is included with each paid reservation

Tables Are Assigned on a First Come, First Served Basis

Your Prepaid Table Reservation Must be Postmarked by September 18, 1998

Yes, Please Reserve _____ Tables at \$10.00 each = \$ _____

Plus, Add _____ Extra Admission Tickets at \$4.00 each = \$ _____

For a Total of \$ _____ , Enclosed.

Will You Need AC Power at Your Table(s) ? ____ Yes / ____ No

Contact Name: _____ Call: _____

Company Name: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

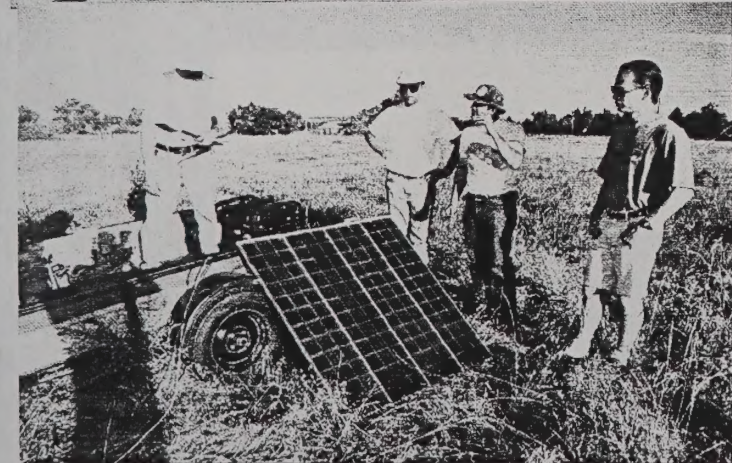
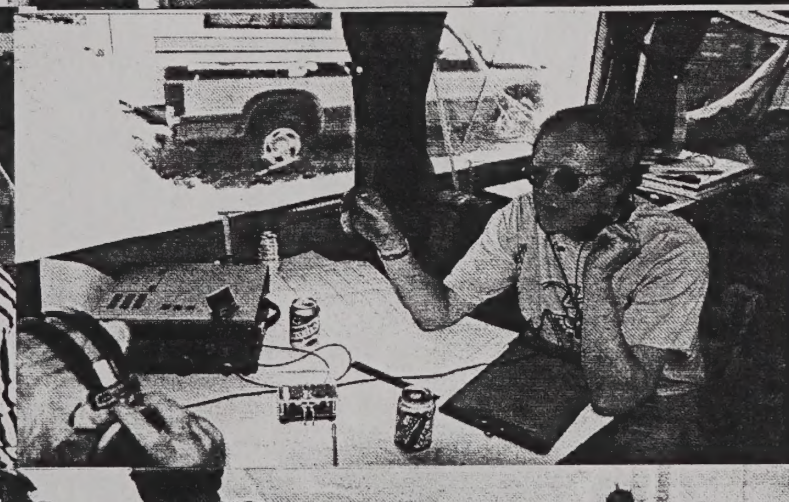
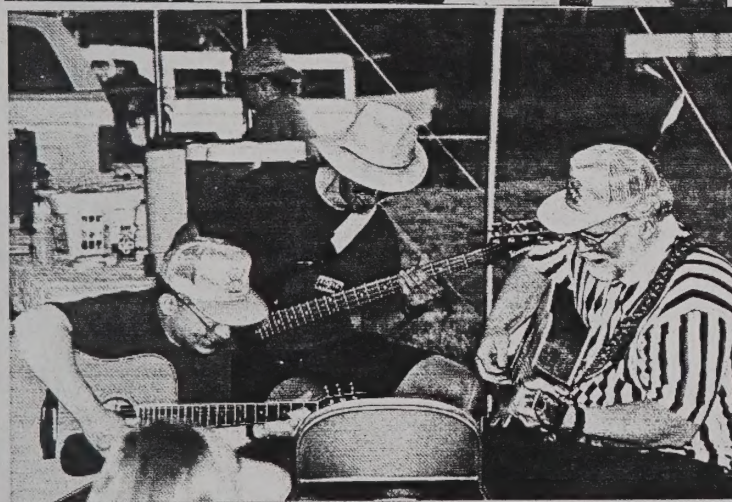
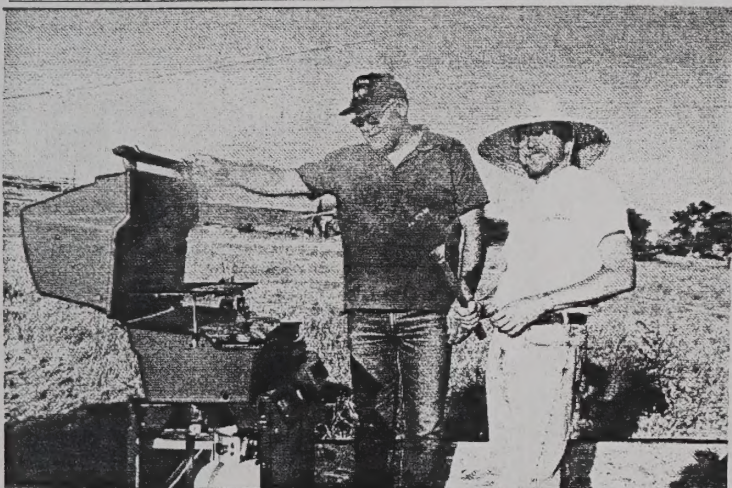
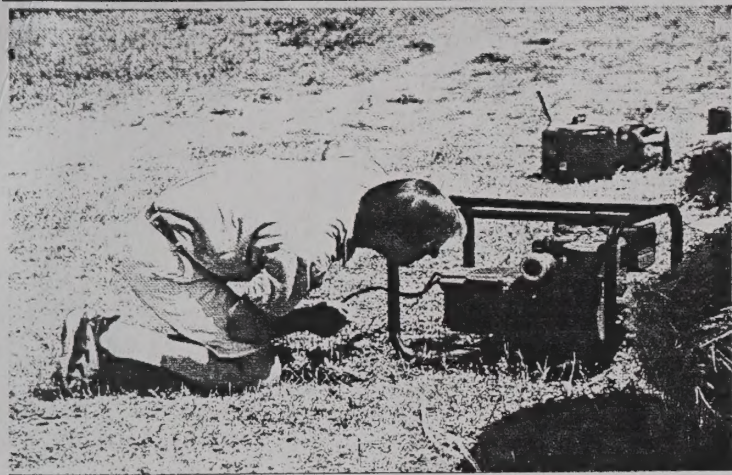
Phone: (____) _____ Fax: (____) _____

E-Mail: _____

Mail this Entire Page with Check for Full Amount Made Payable To **BARC** to:

BARC
PO Box 17362
Boulder, CO 80308

Your Prepaid Table Reservation Must be Postmarked by September 18, 1998 !!



1998 Boulder Amateur Radio Club Membership / Renewal Application

The BARC Membership year is from January 1 to December 31.

Please supply all the information requested below :

Date: _____ Call: _____
 Name: _____
 Other Family Member Name: _____ Call: _____
 Address: _____
 City & State: _____
 Zip Code +4: _____
 Phone: _____ E-Mail: _____

Membership type: _____ {R, C, A}
 License Class: _____ {E,A,G,T+,T,N or blank}
 Year Licensed: _____ (Year first license was granted)
 ARRL Member: _____ (Y or N) License Expires: _____

REMINDER: BARC membership dues are payable at the first of the year. If you are a **BARC Jr.** whose family does **NOT** belong to **BARC** (not part of a family membership), then your yearly dues are also due January 1st. If you want to pay now, your dues will be paid through December, 1998.

Membership Types:

R (Regular) -- \$ 18 / year

Note: Family members are included in regular memberships in the same household.

C (Child) -- \$ 6 / year*

Child memberships are for children 17 years of age or younger whose parents are **not members of B.A.R.C.*

A (Associate) -- \$ 18 / year

**Make checks payable to B.A.R.C.
and Mail to :**

**B.A.R.C. Membership
P.O. Box 17362
Boulder, CO 80308-3362**



B.A.R.C.'s Bark

**Boulder Amateur Radio Club
P.O. Box 17362
Boulder, CO 80308-3362**

Membership expires end of: 98

Randy Cassingham K0 RCC
PO Box 17326
Boulder CO 80308-0326

Aug 18 - "ATV Equipment, Antennas and Basic Theory" - Guest speaker will be Jim Andrews, WAØNHD. Jim will add to his informative, multi-part ATV articles that have been featured in this newsletter with this presentation and ATV equipment demonstration. Meeting at NIST, Rm. 1107.

Amateur Radio - A National Policy - Public Law # 103-408